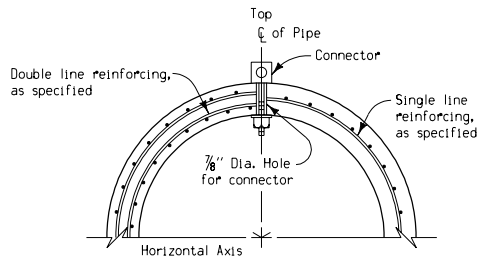
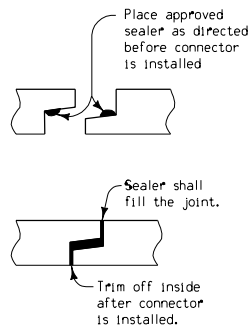


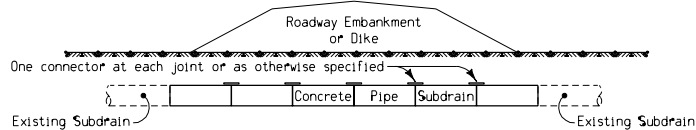
(CONCRETE PIPE TO CORRUGATED PIPE)  
SECTION OF TYPICAL PIPE CONNECTOR



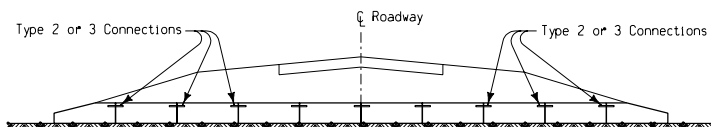
TYPICAL SECTION  
TYPE 1 CONNECTION  
(Non-Sealed Joint)



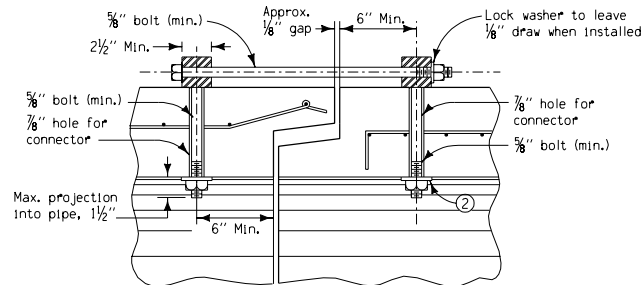
DETAILS OF SEALED JOINT  
(Type 2 Connection Only)



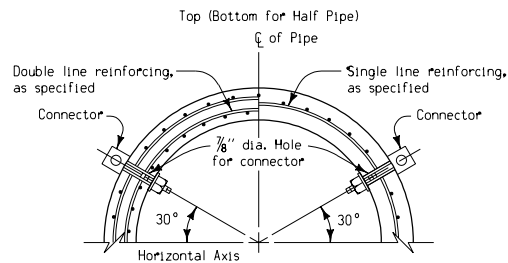
TYPICAL INSTALLATION  
TYPE 1 CONNECTIONS



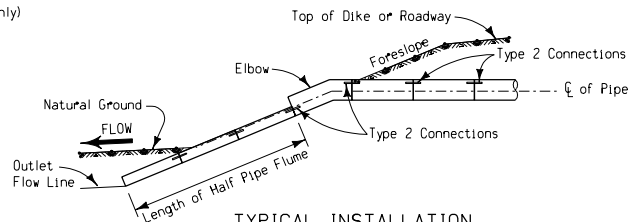
TYPICAL INSTALLATION  
NEW CONSTRUCTION - TYPE 2 or 3 CONNECTIONS



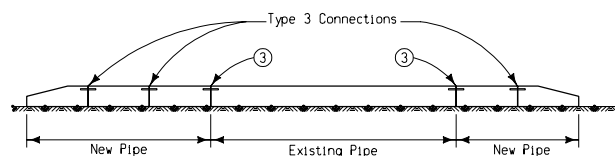
(CONCRETE PIPE TO CONCRETE PIPE)  
SECTION OF TYPICAL PIPE CONNECTOR



TYPICAL SECTION  
TYPE 2 CONNECTION (Sealed Joint)  
TYPE 3 CONNECTION (Non-Sealed Joint)



TYPICAL INSTALLATION  
TYPE 2 CONNECTIONS



TYPICAL INSTALLATION  
PIPE EXTENSION - TYPE 3 CONNECTIONS

#### GENERAL NOTES:

Details shown hereon are for three (3) types of connections for concrete culvert pipe. Alternate designs, methods or materials may be submitted to the Engineer for approval.

Materials and methods of construction shall be in accordance with current Standard and Supplemental Specifications.

#### TYPE 1:

The Type 1 Pipe Connection shall ordinarily be used as shown with one (1) connector at the top of the pipe section. Type 1 Pipe Connections may be used with pipe class 2000D or greater. No joint sealer is required with a Type 1 Connection.

Refer to project plans for additional details of individual installations requiring Type 1 Connections.

#### TYPE 2:

The Type 2 Pipe Connection shall ordinarily be used as shown with two (2) connectors near the top of the pipe section. For details of reinforcement refer to Standard Road Plan RF-1 for the class of pipe required. All joints where Type 2 Pipe Connections are used shall be sealed. The seal shall be of a type that meets the requirements of Article 4149.08 of the Standard Specifications. See Materials I.M. 491.09.

Refer to detail project plans for additional details of individual installations requiring Type 2 Connections.

#### TYPE 3:

The Type 3 Pipe Connection shall ordinarily be used as shown with two (2) connectors near the top of the pipe section. For details of reinforcement, refer to Standard Road Plan RF-1 for the class of pipe required. No joint sealer is required with Type 3 Connections.

Refer to detail project plans for additional details of individual installations requiring Type 3 Connections.

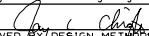
Connected pipe joints shall not be paid for separately but shall be considered incidental to the price bid for concrete pipe.

- ① If holes are field drilled, place a ribbon of butyl sealant around bolts before placing 3" x 3" x 1/4" plate on bolts through corrugated metal pipe and tightening nuts.
- ② 1-3/4" round x 9/64" thick washer or 3" x 3" x 1/4" square plate (shaped to pipe radius)
- ③ On culvert extensions, all new joints shall be connected including the joint between the old and new culvert pipe, except when collars are poured. Holes may need to be drilled into existing pipes.

 Iowa Department of Transportation  
Project Development Division

**STANDARD ROAD PLAN RF-14**

REVISION: Use type 2 or 3 connections in new construction, changed General Notes regarding connections.

APPROVED BY:  DESIGN METHODS ENGINEER

INSTALLATION OF  
CONNECTED PIPE JOINTS

REVISION NO.  
9

REVISION DATE  
04-25-00